Altera Software Installation and Licensing

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Introduction to Altera Software Licensing

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About Altera Software Installation and Licensing

The *Altera Software Installation and Licensing* manual provides comprehensive information for installing and licensing Altera® software, including the Quartus® Prime software, ModelSim-Altera Edition software, Nios® II Embedded Design Suite, and related software on Windows and Linux operating systems.

You download and license Altera software using the Download Center and Self-Service Licensing Center on the Altera website. The Download Center provides the following downloads:

- Software and components
- Programming software
- Board layout and test software
- Altera legacy design software
- License daemons

This document provides instructions to help you:

- Download and install software using the Download Center
- License software using the Self-Service Licensing Center

Note: If you are a single user of Quartus® Prime software for Windows or Linux, use the quick start to get your software up and running quickly. For more detailed instructions, refer to the chapters on downloading, installing, and licensing software.

Related Information

- **Altera Software Installation and Licensing Quick Start** on page 3-1
- **Download Center**
- **Self-Service Licensing Center**

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System Requirements and Prerequisites

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System Requirements

To install and run Altera software your system must meet the following minimum requirements.

Minimum Hardware Requirements

Quartus Prime installation requires the following minimum hardware:

- Windows PC or Linux workstation. Refer to the Operating System Support page of the Altera website for the most up-to-date Altera software operating system requirements
- A monitor capable of at least 1024 x 768 display resolution
- Adequate disk space as described in the *Quartus Prime Software Device Support Release Notes*
- DVD drive (for DVD installation using downloaded **.iso** files only).

Related Information

- **Operating System Support**
- **Quartus Prime Software Device Support Release Notes**

Cable and Port Requirements

Using an Altera download cable or programming unit to program devices with the Quartus Prime software requires the following minimum hardware:

- USB port for connecting a USB-Blaster™ or USB-Blaster II download cable
- 10/100 Mb Ethernet connection for connecting a EthernetBlaster or EthernetBlaster II download cable

Software Requirements

Quartus Prime installation requires the following minimum software:

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- Mozilla Firefox version 3.6 or later, Microsoft Internet Explorer version 8.0 or later, or Google Chrome with an internet connection for Quartus Prime software internet resources
- Adobe Flash Player version 7.0 or later, for the Quartus Prime Getting Started Tutorial
- The **KDE** or **GNOME** window manager (version included with your Linux operating system installation)
- The native XServer software for Linux

Download and Installation Prerequisites

General Prerequisites

- Ensure there is at least 33 GB of free disk space to contain copies of uncompressed version installation files. Disk space requirements for individual components are described on the Download Center of the Altera website.
- When you specify the installation directory, use only alphanumeric characters and do not type any special characters or symbols, such as !$%^&*<>, or non-English characters. Including special characters may invalidate the installation location.

  Note: For Windows, using spaces in the directory path may result in errors for some Quartus Prime features or IP cores. For Linux, spaces are not allowed.
- By default, Altera installs software in the following directories, where <*edition*> is **altera_lite** (Lite Edition), **altera** (Standard Edition), or **altera_pro** (Pro Edition). If you use a different directory name, substitute the appropriate name for <*system directory*> in the installation steps.
  - <*drive*> :\<*edition*>\ <*version number*> system directory for Windows
  - <*home directory*> /<*edition*>/ <*version number*> directory for Linux, where <*home directory*> is the default directory of your Linux workstation, or as set by your system administrator
- You can install multiple copies of the same version of Altera software on the same computer.
- If you want to preserve project compilation databases from an earlier version of the Quartus Prime software before installing a newer version, Altera recommends that you open the design in the earlier version of the software and export a version-compatible database for the design.
- To run the Quartus Prime software using a network (multi-user) license, you must set up and use a license server. Refer to the topic on setting up a floating network license for more information.
- If you are running the Bitdefender antivirus software, you should temporarily disable the software when downloading and installing the Quartus Prime software.

Linux Prerequisites

- The following RPM packages are required to run the Altera Complete Design Suite (ACDS) on systems running Red Hat Linux Enterprise 5 and 6:
  - X Window libraries: libX11.i686, libXau.i686, libXdmcp.i686, libXext.i686, libXft-devel.i686, libXft.i686, libXrender.i686, libXt.i686, and libXtst.i686.
  - GIMP toolkit: GTK+2.
  - For more information about RPM packages, visit the Red Hat website.
- The following additional RPM packages are required to run the ModelSim-Altera Edition software and SoC EDS on systems running Red Hat Linux Enterprise 5 and 6:
  - 32-bit libraries: unixODBC-libs, unixODBC, ncurses, ncurses-libs, libzmq3, libXext, alsa-lib, libXtst, libXft, libxml2, libedit, libX11, libXi.

Windows Prerequisites

- The Microsoft Visual C++ 2008 Redistributable Package (x86) is required to run the ModelSim-Altera Edition software on Windows systems.

Related Information

- **Setting Up a Floating Network License on Your Local Computer** on page 5-13
- **Setting Up or Upgrading a License Manager Server** on page 5-16
- **Microsoft Visual C++ 2008 Redistributable Package (x86)**
- **Download Center**

Altera Software Installation and Licensing Quick Start 3

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Downloading and Installing Quick Start

This quick start provides streamlined instructions for downloading, installing, and licensing Altera software. These instructions assume that you are a single user of the software, and are using Windows or Linux.

You download software from the Download Center on the Altera website. Use one of the following methods:

- Download a bundled set of software and device files, in **.tar** format
- Download individual executable files for customized download and installation
- Download DVD **.iso** files that you burn to a disc and install in different locations

The method you choose depends on your download speed, design requirements, and method of installation. If you want the complete Altera software package and device support for all supported families, you should use the **.tar** or **.iso** formats. If you want to download select elements of the software, additional software, or additional device support, you should use the individual executable files.

Note: If you use a 64-bit Linux operating system, you must install certain 32-bit libraries to run the ModelSim-Altera Edition software. Refer to the software prerequisites for complete details.

This quick start describes how to download software using the **.tar** format. To download using other methods, refer to the detailed download and installation instructions.

Related Information

System Requirements and Prerequisites on page 2-1

Windows Download Manager

If you are using the Windows operating system, the Akamai DLM3 Download Manager should automatically download and install on your local machine. The download manager controls the download of the files you select and allows you to pause and restart the download at any time.

Note: If you are on the Linux operating system or if the download manager does not work on your computer, you must individually download all the files.

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Downloading and Installing with .tar Files

Follow these steps to download and install Altera software with **.tar** files:

1. On the Download Center page of the Altera website, choose whether you want to download and install the Quartus Prime Lite, Standard, or Pro Edition Software.
2. Verify that your operating system (OS) is correct, or select a different OS.
3. Verify that you have sufficient free disk space to contain copies of uncompressed versions of the software files.
4. On the version-specific download page, click **Combined Files**.
5. Choose which files to download:
   - Single, complete **.tar** file.
   - Quartus Prime Standard or Pro Edition **.tar** file and one or more device-specific **.tar** files.
   - Quartus Prime Lite Edition, which includes device files.

   To verify the software and device support included in each file, view the file contents by hovering your mouse over the information icon.
6. Download using one of the following methods:
   - Windows: Select the files and click the **Download Selected Files** button.
   - Linux: Click the download button next to each file name.

   Wait for all of the files to download completely before beginning installation.
7. Extract the file(s) into the same directory. If you extract the files to different directories, the installer does not install all of the components. The **components** subdirectory stores software and device installation files.

   Windows: You must unzip the **.tar** files to extract the installation files. WinZip, 7-Zip, and WinRAR are examples of unzipping tools. You must unzip the files to the same directory. In WinZip, click the **Unzip** button and then click **Unzip to a selected folder**. Do not use unzip program shortcuts, such as **1-Click Unzip**.
8. Run one of the following files to begin installation. The installation wizard guides you through installation.
   - **setup.bat** (Windows) or **setup.sh** (Linux) script (Lite and Standard Editions)
   - **setup_pro.bat** (Windows) or **setup_pro.sh** (Linux) script (Pro Edition)

Installing Programming Cable Drivers

You must install the appropriate programming cable drivers before you can use an Altera download cable or programming unit to program devices with the Quartus Prime software.

The programming cable drivers are located in the following directories:

- Windows: <*drive*> :\<*edition*>\ <*version number*>**\quartus\drivers**
- Linux: <*home directory*>/ <*edition*> /<*version number*>**/quartus/drivers**

Related Information

Cable and Adapter Drivers Information

Configuring the Linux User Environment

Before starting the Quartus Prime software for Linux for the first time, you must set up the Linux user environment.

1. Update each user's PATH environment variable in the **.cshrc** file or **.bashrc** file, which is located in the home directory, to include the Quartus Prime **bin** directory. The **bin** directory is usually located at <*home directory*> **/altera/** <*version number*> **/quartus/bin** directory, where <*home directory*> is the default directory of your Linux workstation or as set by your system administrator. To update the PATH environment variable, type the following command at a command prompt:
   - C shell:

     ```
     setenv PATH ${PATH}:/<Quartus Prime system directory>/bin
     ```

   - Bash shell:

     ```
     export PATH=${PATH}:/<Quartus Prime system directory>/bin
     ```

   If you run the Quartus Prime software for Linux with a script, you can run the latest installed version of the Quartus Prime software with the **quartus** (Lite and Standard Editions) or **qpro** (Pro Edition) executable either by specifying the latest version of the Quartus Prime software, or the full path for the **quartus** or **qpro** executable in the PATH environment variable.
2. Review (and update as appropriate), each user's QUARTUS_ROOTDIR_OVERRIDE environment variable, which specifies the name of the Quartus Prime system directory, and each user's Quartus Prime general environment variables.
3. Optional: If you are using the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE environment variable to specify your license file or license server address, modify the value of LM_LICENSE_FILE or ALTERAD_LICENSE_FILE to point to your **license.dat** file.

   Versions of Altera software that you purchase require a license; you can specify the license using the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE environment variable or from within the software. Refer to the licensing instructions for more information.
4. Save the changes to the **.cshrc** file or **.bashrc** file, and then type the following at a command prompt:
   - C shell:

     ```
     cd
     source .cshrc
     ```

   - Bash shell:

     ```
     cd
     . ~/.bashrc
     ```

Related Information

- **Quartus Prime Environment Variables** on page 4-6
- **Specifying the License File with the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE Environment Variable** on page 3-6

Starting the Quartus Prime Software on Linux

To start the Quartus Prime software, type one of the following commands at the command prompt:

- **Quartus Prime Lite or Standard Edition:** <*path to quartus installation*>`\quartus\bin\quartus`
- **Quartus Prime Pro Edition:** <*path to quartus installation*>`\quartus\bin\qpro`

Note: Make sure you do not run the `quartus` or `qpro` command in the /<*Quartus Prime system directory*>/**linux64** directory. If you start the Quartus Prime software in a platform-specific directory, the software may not function correctly.

Licensing Quick Start

Versions of Altera software that you purchase require a license.

The Altera license enables the software version that you purchase, as well as all previous versions, and all versions that are within one year of the purchase date. A license for the Quartus Prime software also enables the Altera IP library. The license does not expire; you can use these products indefinitely.

The ModelSim-Altera Edition software requires a valid license. This license expires 15 months after the date of purchase. Every 15 months you must regenerate your license file in the Self-Service Licensing Center to renew your license for the specific ModelSim-Altera Edition software version that you purchase.

Note: The Quartus Prime Lite Edition and ModelSim-Altera Starter Edition Software do **NOT** require a license. If you are using this software, you can skip the licensing step and begin using the software.

This quick start describes how to license the Quartus Prime Standard and Pro Edition software for a *single user on one computer*. For other licensing options, refer to the detailed licensing instructions.

Note: Development kits that include the Quartus Prime software include instructions for obtaining a license for that software.

Licensing the Quartus Prime Software for a Single User, Single Computer

To license the Quartus Prime software, you can direct the software to retrieve a license file automatically, or you can manually request a license file from the Self-Service Licensing Center of the Altera website and install it.

To obtain a license file, follow these steps:

1. Start the Quartus Prime software. If the software does not detect a license, you are prompted to evaluate, license, or buy the software.
2. Request a license file using one of the following methods:
   - Select **Perform automatic web license retrieval**. The software attempts to retrieve the license automatically from the Altera website.
   - Manually request a license file using the Self-Service Licensing Center.

     Note: You need to know your computer's network interface card (NIC) ID number to manually request a license.

If the Quartus Prime software is able to retrieve a fixed license file successfully, you can skip the remaining licensing steps and begin using the software.

3. If you requested a license file manually, Altera emails you the license file text and an attached file. Use the attached license file to set up a fixed license.

   If you do not receive an email from Altera within 12 hours of requesting a license, or if you do not know all the required information to complete the process, file a service request at the mySupport section of the Altera website.

Identifying Your NIC ID

A network interface card (NIC) ID is a 12-digit hexadecimal string embedded in the network card that uniquely identifies the PC where the software or license server is installed.

You can find the NIC ID by running a command-line utility on your computer.

Note: If you purchase a floating license and are setting up a license manager server, you can use the FLEXlm licensing scheme to configure up to three redundant license servers. The first server specified is the master. Use the master server's NIC ID or host ID when obtaining a license from Self-Service Licensing Center.

Find Your Windows NIC ID

- Type the following command at a command prompt:

  ```
  ipconfig /all
  ```

  In the output of the command, the NIC ID is the physical address without the dashes. If your PC has more than one network card, you can use the NIC ID of any network card connected to the computer that is turned on when the Quartus Prime software is in use.

Find Your Linux NIC ID

- Type the following command at a command prompt:

  ```
  /sbin/ifconfig eth0
  ```

  In the output of the command, the NIC ID is the ID to the right of **HWaddr**, without the colons.

Find Your NIC ID If the Quartus Prime Software Is Installed

- Your NIC ID appears under **Local System info** in the **Network Interface Card (NIC) ID** field.

Setting Up a Fixed License

To set up a fixed license file (single user, single computer), follow these steps:

1. Make a backup copy of any existing **license.dat** file for reference.
2. Save the **license.dat** file (that was attached to the licensing email you received from Altera) on your local hard drive.

   Altera recommends that you store the **license.dat** file in a directory named **C:\licenses\flexlm** (Windows) or **/usr/local/flexlm/licenses** (Linux).

   When you specify the license file location, use only alphanumeric characters and do not type any special characters or symbols, such as !$%^&*<>, empty spaces, or non-English characters in the license file directory name. Special characters may invalidate the license file location.
3. Use one of the following methods to specify your license:

- Specify the license within the Quartus Prime software.
- Specify the license file using an environment variable.

If you are using the legacy Quartus II software version 7.2 or earlier, you must also use a software guard. Attach the software guard to a parallel or USB port on your computer.

Related Information

- **Specifying the License File within the Quartus Prime Software** on page 3-6
- **Specifying the License File with the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE Environment Variable** on page 3-6

Specifying the License File within the Quartus Prime Software

You can specify a fixed or floating license file within the Quartus Prime software.

To specify the license file within the Quartus Prime software, follow these steps:

1. Start the Quartus Prime software. If the Quartus Prime software cannot detect a valid license file, you are prompted to license, evaluate, or buy the software.
2. Select **Specify valid licence file**. The **License Setup** page on the **Options** dialog box appears.
3. In the **License file** box, specify the full path name of the **license.dat** file.
4. Click **OK**.

After you specify the location of the license file, you can begin using the software.

Related Information

Quartus Prime Help: Specifying the License File within the Quartus Prime Software

Specifying the License File with the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE Environment Variable

You can specify the Quartus Prime software license location with the `LM_LICENSE_FILE` or `ALTERAD_LICENSE_FILE` environment variable.

To specify the license file:

1. Close the software if it is open.
2. Set the `LM_LICENSE_FILE` or `ALTERAD_LICENSE_FILE` environment variable using the Control Panel (Windows) or by editing your **.cshrc** or **.bashrc** file (Linux).

   Note: Linux: You must source your **.cshrc** or **.bashrc** file before restarting the Quartus Prime software. See the topic on setting up the Linux environment for more details.
3. Start the Quartus Prime software.

Note: The license file setting in the **License Setup** dialog box supersedes the `LM_LICENSE_FILE` or `ALTERAD_LICENSE_FILE` environment variable setting.

Setting Windows Environment Variables

To set environment variables in Windows, follow these steps:

1. Click **Windows Start menu** > **Control Panel** (or open the Control Panel app in Windows 8).
2. Click **System and Security**.
3. Click System.
4. Click **Advanced system settings**.

5. Click the **Advanced** tab in the **System Properties** dialog box.
6. Click **Environment Variables**.
7. Select a variable in the **Environment Variables** dialog box.
8. Click **Edit**.
9. Type a value in the **Variable value** box in the **Edit Variable** dialog box.

Downloading and Installing Altera Software

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Introduction

This section provides detailed instructions for downloading and installing Altera software.

You download software from the Download Center on the Altera website. You have several options for downloading software:

- Download a bundled set of software and device files, in **.tar** format
- Download individual executable files for customized download and installation
- Download DVD **.iso** files that you burn to a disc and install in different locations

The method you choose depends on your download speed, design requirements, and method of installation. If you want the complete Altera software package and device support for all supported families, you should use the **.tar** or **.iso** formats. If you want to download select elements of the software, additional software, or additional device support, you should use the individual executable files.

Note: If you use a 64-bit Linux operating system, you must install certain 32-bit libraries to run the ModelSim-Altera Edition software. Refer to the software prerequisites for complete details.

Related Information

Download Center

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Altera Software Available in the Download Center

- Altera software:
  - Quartus Prime Pro, Standard, and Lite Edition software v15.1 (includes the Nios II EDS and Altera IP Library)
  - Quartus Prime Help
  - ModelSim-Altera Edition software v10.4b for Quartus Prime software v15.1 (32-bit)
  - DSP Builder
  - FLEXlm license server software
  - JNEye
  - Stand-alone Quartus Prime Programmer and Tools (32 and 64 bit)
  - SoC Embedded Design Suite (EDS)
  - Altera SDK for OpenCL
- Device support for Stratix®, Arria®, Cyclone®, or MAX®, device families must be installed as part of the Quartus Prime installation.

Note: You can also obtain older versions of software and legacy software from the Download Center.

Related Information

Operating System Support

Windows Download Manager

If you are using the Windows operating system, the Akamai DLM3 Download Manager should automatically download and install on your local machine. The download manager controls the download of the files you select and allows you to pause and restart the download at any time.

Note: If you are on the Linux operating system or if the download manager does not work on your computer, you must individually download all the files.

Downloading and Installing Software

Downloading and Installing with .tar Files

Follow these steps to download and install Altera software with **.tar** files:

1. On the Download Center page of the Altera website, choose whether you want to download and install the Quartus Prime Lite, Standard, or Pro Edition Software.
2. Verify that your operating system (OS) is correct, or select a different OS.
3. Verify that you have sufficient free disk space to contain copies of uncompressed versions of the software files.
4. On the version-specific download page, click **Combined Files**.
5. Choose which files to download:
   - Single, complete **.tar** file.
   - Quartus Prime Standard or Pro Edition **.tar** file and one or more device-specific **.tar** files.
   - Quartus Prime Lite Edition, which includes device files.

To verify the software and device support included in each file, view the file contents by hovering your mouse over the information icon.

6. Download using one of the following methods:
   - Windows: Select the files and click the **Download Selected Files** button.
   - Linux: Click the download button next to each file name.

   Wait for all of the files to download completely before beginning installation.
7. Extract the file(s) into the same directory. If you extract the files to different directories, the installer does not install all of the components. The **components** subdirectory stores software and device installation files.

   Windows: You must unzip the **.tar** files to extract the installation files. WinZip, 7-Zip, and WinRAR are examples of unzipping tools. You must unzip the files to the same directory. In WinZip, click the **Unzip** button and then click **Unzip to a selected folder**. Do not use unzip program shortcuts, such as **1-Click Unzip**.
8. Run one of the following files to begin installation. The installation wizard guides you through installation.
   - **setup.bat** (Windows) or **setup.sh** (Linux) script (Lite and Standard Editions)
   - **setup_pro.bat** (Windows) or **setup_pro.sh** (Linux) script (Pro Edition)

Downloading and Installing with Individual Executable Files

Follow these steps to download and install Altera software with individual executable files.

1. On the Download Center page of the Altera website, choose whether you want to download and install the Quartus Prime Lite, Standard, or Pro Edition Software.
2. Verify that your operating system (OS) is correct, or select a different OS.
3. On the version-specific download page, click **Individual Files**.
4. Download using one of the following methods:
   - Windows: Select the files and click the **Download Selected Files** button.

     Note: The download manager opens and begins the download process. If you cannot use the download manager, follow the instructions for Linux.
   - Linux: Click the download button next to each file name.

   To verify the software and device support included in each file, view the file contents by hovering your mouse over the information icon.
5. Run one of the following files to begin installation. The main Quartus Prime software installer launches, automatically detects all other software and device support installation files in the same directory, and installs the software and device support.
   - **QuartusLiteSetup**-<*version*> (Lite Edition)
   - **QuartusSetup**-<*version*> (Standard Edition)
   - **QuartusProSetup**-<*version*> (Pro Edition)

Downloading and Installing with .iso Files

Follow these steps to download and install Altera software with **.iso** files:

1. On the Download Center page of the Altera website, choose whether you want to download and install the Quartus Prime Lite, Standard, or Pro Edition Software.
2. Verify that your operating system (OS) is correct, or select a different OS.
3. On the version-specific download page, click **DVD .iso Files**.
4. Download using one of the following methods:
   - Windows: Select the files and click the **Download Selected Files** button.

     Note: The download manager opens and begins the download process. If you cannot use the download manager, follow the instructions for Linux.
   - Linux: Click the download button next to each file name.

   Wait for all of the files to download completely before beginning installation.
5. Burn the files to DVDs or mount the **.iso** file.

   You must use a double-layer DVD if the **.iso** file size is larger than 4.7 GB.
6. Run one of the following files to begin installation. The installation wizard guides you through installation.
   - **setup.bat** (Windows) or **setup.sh** (Linux) script (Lite and Standard Editions)
   - **setup_pro.bat** (Windows) or **setup_pro.sh** (Linux) script (Pro Edition)

Installing Additional Device Support and Other Altera Software

If you did not install the complete Altera software package and device support, you can download and install additional device support or software (such as Quartus Prime Help, DSP Builder, or the ModelSim-Altera Edition software).

You download device family support and other Altera software from the **Individual Files** and **Additional Software** tabs on the version-specific download page on the Download Center of the Altera website.

- Download device family support files to the same directory as the Quartus Prime software, and then install it through the Quartus Prime software.
- Install other Altera software in the same directory as the Quartus Prime software.

Downloading and Installing Additional Device Support

If you have installed the Quartus Prime software, you can download additional device support.

1. On the Download Center on the Altera website, choose whether you want the Quartus Prime Lite, Standard, or Pro Edition software.
2. Verify that your operating system is correct, or select a different OS.
3. On the version-specific download page, click **Individual Files**.
4. Download using one of the following methods:
   - Windows: Select the files and click the **Download Selected Files** button.

     Note: The download manager opens and begins the download process. If you cannot use the download manager, follow the instructions for Linux.
   - Linux: Click the download button next to each file name.

Wait for all of the files to download completely before beginning the installation process.

5. Run the Quartus Prime software.
6. Choose **Tools** > **Install Devices**. The installation wizard guides you through installation. Install the device family support to the same location as the Quartus Prime software.

   Windows: If you do not see the **Install Devices** command, point to **All Programs** > **Altera <version number>** (Windows Start menu).

Downloading and Installing Additional Software

If you have installed the Quartus Prime software, you can download additional software, such as Quartus Prime Help.

1. On the Download Center on the Altera website, choose whether you want the Quartus Prime Lite, Standard, or Pro Edition software.
2. Verify that your operating system is correct, or select a different OS.
3. On the version-specific download page, click **Additional Software**.
4. Download using one of the following methods:
   - Windows: Select the files and click the **Download Selected Files** button.

     Note: The download manager opens and begins the download process. If you cannot use the download manager, follow the instructions for Linux.
   - Linux: Click the download button next to each file name.

   Wait for all of the files to download completely before beginning the installation process.
5. Run the <*software name*>**Setup**-<*version*> file to begin installation. The installation wizard guides you through installation.

Downloading and Installing Altera Software Updates

Follow these steps to download updates when they are available.

1. Ensure that the current version of the Altera software is installed.
2. Choose whether you want the Quartus Prime Lite, Standard, or Pro Edition software.
3. Verify that your operating system is correct, or select a different OS.
4. On the version-specific download page, click **Updates**.
5. Download using one of the following methods:
   - Windows: Select the files and click the **Download Selected Files** button.

     Note: The download manager opens and begins the download process. If you cannot use the download manager, follow the instructions for Linux.
   - Linux: Click the download button next to each file name.

   Wait for all of the files to download completely before beginning the installation process.
6. Run the executable file(s) to launch the installation wizard. The installation wizard guides you through the installation process.

   Note: For information about the latest updates, refer to the update release notes on the Altera web site.

Additional Installation Procedures

In addition to the procedures described in this manual, you can perform the following installation procedures for Altera software:

- *Installing software at the command line*—You can install Altera software at the command line with a custom installation script using command-line arguments.
- *Setting up the Quartus Prime software with a JTAG server on a network*—You can set up the Quartus Prime software to allow the JTAG server to run JTAG services, which is necessary if you install the Quartus Prime software for Windows on a network drive and have a JTAG server.

Related Information

Quartus Prime Help: About Installing Altera Software

TalkBack Feature

The TalkBack feature helps Altera to understand how customers use the Quartus Prime software and devices so that Altera can focus on improving features most important to users.

Optionally, you can turn on the TalkBack feature by turning on **Turn on the Quartus Prime software TalkBack feature** in the **TalkBack Options** dialog box. This dialog box appears at the end of the installation process if the option is not already turned on.

Note: The TalkBack feature is turned on by default when you install the Quartus Prime Lite Edition software.

Quartus Prime Environment Variables

The Quartus Prime software installation process initializes environment variables. You can modify these variables using the Windows Control panel or by editing your Linux shell environment settings to optimize your system performance.

- `QUARTUS_ROOTDIR_OVERRIDE`—The `QUARTUS_ROOTDIR_OVERRIDE` environment variable specifies the name of the Quartus Prime system directory. The default directory is <*home directory*>/<*edition*>/<*version number*> (Linux) or <*Quartus Prime system directory*>\<*edition*>\<*version number*>**quartus** (Windows).

Note: If the system displays an error message indicating that Quartus Prime software files cannot be found when you start the program, you should set the `QUARTUS_ROOTDIR_OVERRIDE` environment variable to the name of the Quartus Prime system directory.

- `QUARTUS_LIBRARY_PATHS`—The `QUARTUS_LIBRARY_PATHS` environment variable specifies user-defined library paths. You can use this environment variable to define multiple library paths at the same time instead of individually adding each path to the user library.

You must add `$QSYS_ROOTDIR` to the `PATH` variable (`$QSYS_ROOTDIR` locates the directory at `$QUARTUS_ROOTDIR`/**sopc_builder/bin**).

Setting Windows Environment Variables

To set environment variables in Windows, follow these steps:

1. Click **Windows Start menu** > **Control Panel** (or open the Control Panel app in Windows 8).
2. Click **System and Security**.
3. Click System.
4. Click **Advanced system settings**.
5. Click the **Advanced** tab in the **System Properties** dialog box.
6. Click **Environment Variables**.
7. Select a variable in the **Environment Variables** dialog box.
8. Click **Edit**.
9. Type a value in the **Variable value** box in the **Edit Variable** dialog box.

Setting Linux Environment Variables

Depending on your shell type, you can find environment variables in the directories listed in the following table. Set your environment variables with the shell type specific format.

Table 4-1: Environment Variable Location and Format

Shell	Location	Format
C	**.cshrc** file	`setenv <environment variable> <value>`
Bourne or Korn	**.profile** file	`set <environment variable> = <value>`
Bash	**.bashrc** file	`export <environment variable> = <value>`

Configuring the Linux User Environment

Before starting the Quartus Prime software for Linux for the first time, you must set up the Linux user environment.

1. Update each user's `PATH` environment variable in the **.cshrc** file or **.bashrc** file, which is located in the home directory, to include the Quartus Prime **bin** directory. The **bin** directory is usually located at *<home directory>* **/altera/** *<version number>* **/quartus/bin** directory, where *<home directory>* is the default directory of your Linux workstation or as set by your system administrator. To update the `PATH` environment variable, type the following command at a command prompt:
   - C shell:

     ```
     setenv PATH ${PATH}:/<Quartus Prime system directory>/bin
     ```

   - Bash shell:

     ```
     export PATH=${PATH}:/<Quartus Prime system directory>/bin
     ```

   If you run the Quartus Prime software for Linux with a script, you can run the latest installed version of the Quartus Prime software with the **quartus** (Lite and Standard Editions) or **qpro** (Pro Edition)

executable either by specifying the latest version of the Quartus Prime software, or the full path for the **quartus** or **qpro** executable in the PATH environment variable.

2. Review (and update as appropriate), each user's QUARTUS_ROOTDIR_OVERRIDE environment variable, which specifies the name of the Quartus Prime system directory, and each user's Quartus Prime general environment variables.
3. Optional: If you are using the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE environment variable to specify your license file or license server address, modify the value of LM_LICENSE_FILE or ALTERAD_LICENSE_FILE to point to your **license.dat** file.

   Versions of Altera software that you purchase require a license; you can specify the license using the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE environment variable or from within the software. Refer to the licensing instructions for more information.
4. Save the changes to the **.cshrc** file or **.bashrc** file, and then type the following at a command prompt:

   - C shell:

     ```
     cd
     source .cshrc
     ```

   - Bash shell:

     ```
     cd
     . ~/.bashrc
     ```

Related Information

- **Quartus Prime Environment Variables** on page 4-6
- **Specifying the License File with the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE Environment Variable** on page 3-6

Installing Programming Cable Drivers

You must install the appropriate programming cable drivers before you can use an Altera download cable or programming unit to program devices with the Quartus Prime software.

The programming cable drivers are located in the following directories:

- Windows: <*drive*> :\<*edition*>\ <*version number*>**\quartus\drivers**
- Linux: <*home directory*>/ <*edition*> /<*version number*>**/quartus/drivers**

Related Information

Cable and Adapter Drivers Information

Starting the Quartus Prime Software

You can run the Quartus Prime software on Windows and Linux.

For versions that you purchase, the Quartus Prime software prompts you for license information if it does not detect a license upon startup. You are prompted to evaluate, buy, or retrieve a license.

Note: You can evaluate the Quartus Prime software at no cost for a period of time.

Related Information

Evaluating the Quartus Prime Software on page 5-3

Starting the Quartus Prime Software on Windows

To start the Quartus Prime software:

1. To start the Quartus Prime software on Windows, complete one of the following steps:
   - On the Windows Start menu, point to **All Programs** > **Altera <version number> <edition>** > **Quartus Prime<edition><version number>** > **Quartus Prime<edition><version number>**
   - Type one of the following commands at a command prompt:
     - **Lite or Standard Edition:** *<drive>*:*<Quartus Prime system directory>*\bin64\quartus
     - **Pro Edition:** *<drive>*:*<Quartus Prime system directory>*\bin64\qpro

Starting the Quartus Prime Software on Linux

To start the Quartus Prime software, type one of the following commands at the command prompt:

- **Quartus Prime Lite or Standard Edition:** *<path to quartus installation>*\quartus\bin\quartus
- **Quartus Prime Pro Edition:** *<path to quartus installation>*\quartus\bin\qpro

Note: Make sure you do not run the `quartus` or `qpro` command in the /*<Quartus Prime system directory>*/**linux64** directory. If you start the Quartus Prime software in a platform-specific directory, the software may not function correctly.

Uninstalling Altera Software

Uninstalling on Windows

1. On the Windows Start menu, point to **All Programs** > **Altera <version number>**.
2. Point to **<software name> <version number>** > **Uninstall <software name> <version number>**.

   The installation wizard appears and guides you through the uninstallation process.

Uninstalling on Linux

- Make sure that none of your project files are contained in the Altera software directory, and then delete the Altera software directory (default name is **altera_lite**/*<version number>*, **altera**/*<version number>*, or **altera_pro**/*<version number>*).

Licensing Altera Software 5

2015.11.02

MNL-1065 Subscribe Send Feedback

Licensing Overview

Most Altera software requires you to use a license to enable the software. The license is provided in a file named **license.dat**. The free Quartus Prime Lite Edition and ModelSim-Altera Starter Edition software do not require a license.

An Altera software subscription enables the Quartus Prime software (including the Altera IP Library) and the ModelSim-Altera Edition software. When you purchase a Quartus Prime software subscription, the license file supports the version of the Quartus Prime software you purchase, all previous versions, and all versions released within a year of the purchase date. You can use the version of the Quartus Prime software you purchase, and all related software, including the ModelSim-Altera Edition software and the Altera IP Library, indefinitely.

Altera also uses licenses to enable additional software, such as purchased MegaCore functions, the Altera SDK for OpenCL, and the SoC Embedded Design Suite (EDS).

Licensing Altera Software

To set up your license for Altera software, follow these steps:

1. Determine which software you are licensing, e.g., the Quartus Prime software, a purchased Altera MegaCore function, etc.
2. Obtain a license file for that software from the Altera Self-Service Licensing Center.
3. Set up the license file on your computer.
4. For floating network licenses only: set up the FLEXlm license manager server.

   A FLEXlm license manager server issues floating licensing to computers on a network. For more information about floating licenses, refer to Setting Up or Upgrading a License Manager Server.

Related Information

Setting Up or Upgrading a License Manager Server on page 5-16

Software License Types

Altera provides licenses for purchased versions of the Quartus Prime software as well as other software such as purchased MegaCore functions, development kits, and the ModelSim-Altera software.

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ISO 9001:2008 Registered

Licensing the Quartus Prime and ModelSim-Altera Software

When you purchase a Quartus Prime subscription, you choose between a single-user license that is fixed to a specific computer and a multi-user floating license in which the license(s) are shared among computers on a network.

- *Fixed license*—A stand-alone (node-locked, single-user) license is tied to the network interface card (NIC) ID of the computer on which you installed the Altera software.
- *Floating license*—A floating network (multi-user) license is for users running the Quartus Prime software on multiple computers connected on a network. A license server issues licenses to computers on demand. Floating licenses are not operating system-specific. If you want to run the Altera software on additional computers, you can purchase additional seats to add to your floating license after its original purchase.

Note: Altera continues to support operating system-specific floating licenses for the legacy Quartus II software version 6.1 and earlier.

The ModelSim-Altera Edition software requires a valid license. This license expires 15 months after the date of purchase. Every 15 months you must regenerate your license file in the Self-Service Licensing Center to renew your license for the specific ModelSim-Altera Edition software version that you purchased.

The ModelSim-Altera Edition software does not require a *separate* license file. If you purchase this software, your Quartus Prime license file includes a `FEATURE` line to enable it. You must, however, specify the location of license file for the ModelSim-Altera Edition software using an environment variable before you can use it. Refer to the topic about specifying a ModelSim license file for more information.

Related Information

- **License.dat Example Files** on page 6-5
- **Specifying the License for the ModelSim-Altera Edition Software** on page 5-15

Licensing the Quartus Prime Lite Edition and ModelSim-Altera Starter Edition Software

Altera offers the entry-level Quartus Prime Lite Edition and ModelSim-Altera Starter Edition software. This software supports selected devices, provides limited feature support, and does **not** require license files.

Licensing Intellectual Property (IP) Cores

When you install the Quartus Prime software, the Altera IP Library is installed automatically. You can use the OpenCore or OpenCore Plus features to evaluate Altera IP cores before you purchase them. After purchase, you obtain a license to generate programming files that you may use for an unlimited time. Third-party IP cores are delivered by the partner for evaluation with the appropriate license.

You must have a full license for all Altera MegaCore soft IP or Nios II soft processor cores to generate programming files that you may use for an unlimited time. You can purchase a license through your local Altera sales office or distributor, and then download a license file from the Self-Service Licensing Center of the Altera website.

Related Information

- **Self-Service Licensing Center**
- **Intellectual Property and Reference Designs**
- **AN 320: OpenCore Plus Evaluation of Megafunctions**

- **AN 343: OpenCore Evaluation of AMPP Megafunctions**

Licensing Development Kits Containing the Quartus Prime Software

Development kits that include the Quartus Prime software include instructions for obtaining a license for that software.

You can purchase development kits from the Development Kits, Daughter Cards & Programming Hardware page on the Altera web site or through your local Altera sales office or distributor.

Related Information

Development Kits, Daughter Cards and Programming Hardware

Licensing for the Nios II Embedded Design Suite

You can create, compile, and generate time-limited FPGA programming files for Nios II hardware systems without obtaining a license file. To generate non-time-limited FPGA programming files and flash programming files, you must obtain a license for the Nios II processor core or Nios II development kit. You do not need a license to develop software using only the Nios II Software Build Tools for Eclipse.

Licensing Mentor Graphics Verification IP Altera Edition AMBA for AXI3 and AXI4

The Mentor Graphics Verification IP (VIP) Altera Edition provides bus functional models for simulation and verification. This software requires a license file.

If you are using a legacy version of Quartus II software (prior to version 12.1) and want to upgrade your software, you must regenerate your license file before continuing to use the Mentor Graphics AXI Verification IP Suite Altera Edition Bus Functional Models and Inline Monitor (Mentor VIP AE) for AXI3 or AXI4.

If you want to access Mentor VIP AE with the Quartus Prime Lite Edition software, you must upgrade to version 12.1 or higher and purchase seat licenses by contacting your Altera sales representative.

Altera University Program Software Licenses

The Altera University Program offers licensed and unlicensed Altera software to participating universities.

For use in teaching, the University Program recommends the Quartus Prime Lite Edition software, which does not require a license. The licensed commercial versions of the Quartus Prime Standard and Pro Edition software are available for installation in university laboratory facilities. Refer to the University Program pages on the Altera website for more information.

Related Information

Altera University Program

Evaluating the Quartus Prime Software

You can evaluate the Quartus Prime software at no cost for a period of time.

When you start the Quartus Prime software, if the software cannot detect a valid license file, a dialog box with the following options appears:

- **Buy the Quartus Prime Subscription Edition software**—launches your default internet browser and displays the Buy Design Software page of the Altera website, where you can view and purchase Altera software options.
- **Start the 30 day evaluation period with no license file**—allows you to use the Quartus Prime software for 30 days without programming file support.
- **Perform automatic web license retrieval**—for fixed licenses, this option allows the Quartus Prime software to retrieve the license file automatically from the Altera website.
- **If you have a valid license file, specify the location of your license file**—displays the **License Setup** page of the **Options** dialog box, where you can specify the location of your license file.

Choose the 30 day evaluation option to evaluate the software before purchase.

Note: The Quartus Prime Pro Edition software is beta in version 15.1. You can evaluate the beta software for 30 days, after which you must request a license file.

Related Information

- **License Files** on page 5-4
- **Setting Up Your License File** on page 5-11
- **Buy Design Software**

License Files

Hardware Information Required when You Request a License

You obtain licenses from the Self-Service Licensing Center of the Altera website. To request a license, you need to provide information about the computer on which you want to install the license.

Most licenses require a network interface card (NIC) ID, which is the physical address of your Ethernet card.

Table 5-1: Required Information for Each License Type

License Type	Requirements
Fixed license	NIC ID or software guard ID for Windows PCs **(1)**
Floating license	NIC ID for Windows or Linux license servers Host ID for UNIX license servers
Intellectual Property (IP) and Development Kit License	Variable **(2)**

License Type	Requirements

Notes:

1. Software guards are supported for the legacy Quartus II software version 7.2 and earlier.
2. Because Intellectual Property (IP) and development kit licenses are added as feature lines in the Quartus Prime software license file, the licensing requirements depend on the Quartus Prime software license type.

Related Information

- **Self-Service Licensing Center**
- **Legacy License Generator**

Identifying Your NIC ID

A network interface card (NIC) ID is a 12-digit hexadecimal string embedded in the network card that uniquely identifies the PC where the software or license server is installed.

You can find the NIC ID by running a command-line utility on your computer.

Note: If you purchase a floating license and are setting up a license manager server, you can use the FLEXlm licensing scheme to configure up to three redundant license servers. The first server specified is the master. Use the master server's NIC ID or host ID when obtaining a license from Self-Service Licensing Center.

Find Your Windows NIC ID

- Type the following command at a command prompt:

  ```
  ipconfig /all
  ```

  In the output of the command, the NIC ID is the physical address without the dashes. If your PC has more than one network card, you can use the NIC ID of any network card connected to the computer that is turned on when the Quartus Prime software is in use.

Find Your Linux NIC ID

- Type the following command at a command prompt:

  ```
  /sbin/ifconfig eth0
  ```

  In the output of the command, the NIC ID is the ID to the right of **HWaddr**, without the colons.

Find Your NIC ID If the Quartus Prime Software Is Installed

- Your NIC ID appears under **Local System info** in the **Network Interface Card (NIC) ID** field.

Find Your Windows NIC ID Using FLEXlm Utilities

- Type the following command at a command prompt:

  ```
  <drive>:<Quartus Prime system directory>\bin\lmutil lmhostid
  ```

Identifying Your UNIX Host ID

The license server host ID is an eight-digit hexadecimal number, which identifies the UNIX workstation that serves Quartus Prime software licenses. The license server host ID for UNIX is equivalent to the NIC ID.

Related Information

Identifying Your NIC ID on page 3-5

Locating Your Hard-Disk Serial Number

Some versions of Altera software use the hard disk serial number for licensing. A hard-disk serial number is an eight-character hexadecimal ID that identifies the PC with the Altera license. If the ID is not eight characters, include a leading zero.

To find the hard-disk serial number on a Windows PC

- Type the following command at a command prompt:

  ```
  vol c:
  ```

  In the output of the command, the hard-disk serial number is the volume serial number.

To find the hard-disk serial number if the Quartus Prime software is installed on your computer

- Click **Tools** > **License Setup**. The hard-disk serial number appears under **Local Systems info** in the **C: drive serial number** field. Verifying the hard-disk serial number with the Quartus Prime software ensures that you use the correct hard-disk serial number if your PC has multiple hard drives.

Identifying Your USB Software Guard ID

Altera supports USB software guards for licensing the Quartus Prime software. A USB software guard ID is a ten-character alphanumeric number beginning with the letter T.

You can find the software guard ID on the printed label on the guard, or if the Quartus Prime software is installed and the guard is attached, on the **License Setup** dialog box from the Tools menu. Your software guard ID appears under **Local System info** in the **Software Guard ID** field.

Requesting a License File

You can direct the Quartus Prime software to retrieve a license file automatically, or you can manually request a license file from the Self-Service Licensing Center of the Altera website.

Note: If you want to obtain a license file for Altera software or IP with an expiration date prior to January 1, 2009, visit the Legacy License Generator page on the Altera website.

To obtain a license file, follow these steps:

1. Start the Quartus Prime software.
2. Request a license file using one of the following methods:
   - Select **Perform automatic web license retrieval** to request a license file automatically from the Altera website.
   - Manually request a license file using procedures in the Self-Service Licensing Center. (If you have a triple redundant license server for floating licenses, you must manually request a license file.)

If the Quartus Prime software is able to retrieve a fixed license file successfully from the Altera website, you can skip the remaining steps of this procedure. If not, you are guided through the licensing procedure.

3. Altera sends you an email with the license file text included in the body of the email and an attached file. Use the attached license file as is if you have a fixed, single-user license. If you have a floating license, you must edit the attached license file to update the <*hostname*>, <*port number*> and <*path to daemon executable*> to point to your license server. If you want to use both the Quartus Prime and legacy MAX+PLUS II software, save the **license.dat** file in a top-level directory named <*drive*>**:\flexlm**.

   If you do not receive an email from Altera within 12 hours of requesting a license, or if you do not know all the required information to complete the process, file a service request on the mySupport section of the Altera website.

   If you have a floating, multi-user license, the FLEXlm licensing scheme allows you to set up three redundant license servers to serve licenses. You must request a license file for redundant servers from the Self-Service Licensing Center (you cannot retrieve it automatically).
4. Point to your license file in the Quartus Prime software or by using environment variables.

Related Information

- **Using the Self-Service Licensing Center** on page 5-7
- **Setting Up Your License File** on page 5-11
- **Self-Service Licensing Center**
- **Altera Licensing**
- **Legacy License Generator**

Using the Self-Service Licensing Center

The Self-Service Licensing Center is an online licensing center that allows you to view, obtain, activate, and manage your Altera software licenses. You can perform the following tasks with the Self-Service Licensing Center:

- Obtain license files—you can obtain license files for your existing and new licenses.
- View existing licenses—you can view all of your existing licenses, including their expiration dates, available rehosts, and licensed users.
- Renew licenses—you can renew your existing licenses.
- Rehost licenses—you can transfer your existing licenses from one computer to another. You have a total of three rehosts for each license.
- Activate a new license—you can activate new licenses after purchase.
- Add seats to a floating license—you can add seats to your existing floating licenses.
- Manage license users—you can specify the licensed user for each of your existing licenses.
- View license history—you can view the license file history for each computer that you add to your myAltera account.

Additionally, you can also split a floating license, obtain a checkout license, or obtain a companion license with the Self-Service Licensing Center.

You can access the Self-Service Licensing Center from the Altera Licensing page, the mySupport page, or from the Download Center. You must have a myAltera account to access the Self-Service Licensing Center.

Related Information

- **Self-Service Licensing Demonstrations**
- **Self-Service Licensing Center**
- **Using the Self-Service Licensing Center**
- **mySupport**

Selecting a New, Existing, or Renewed License File

You can obtain a license file for an existing, new, or renewed license. If you want to obtain a license file for a new or renewed license, you must first activate or renew the license.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. Click **Create New License**.
4. Expand a list of products, double-click to select one or more products from the **Unlicensed Products** table, and then click **Next**.
5. Select a computer to which you want to assign your license from the **Available Computers** table, and then click **Next**.
6. Click **Confirm Selection** to generate the license file.

Your license file is sent to the email address specified for your licensed user. If you have not specified an email address, your license file is sent to the email address in your myAltera account profile. Your software license type must match the license type of any license you want to assign your computer.

Related Information

- **Activating a License** on page 5-10
- **Renewing a License** on page 5-10
- **Creating a Computer Profile** on page 5-8

Creating a Computer Profile

You can create computer profiles for your myAltera account to which you can assign licenses.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. In the **Computer and License Files** tab, click **Add Computer**.
4. In the **Add Computer** dialog box, select the **License Type** for your computer. Your software license type must match the license type of any license you want to assign your computer.
5. Select the **Primary Computer Type** for your computer. The primary computer type is the NIC ID, Host ID, or software guard ID.
6. Type your computer name in the **Primary Computer Name** box. You can specify any name meaningful to you in this box.
7. Type your NIC ID, Host ID, or software guard ID number in the **Primary Computer ID** box.
8. If you have a fixed license and want to use your license for multiple computers, you can specify up to two companion IDs in the **Companion ID** and **Companion ID 2** boxes. Your companion ID is your NIC ID, Host ID, or software guard ID. You can use your license or associated companion license only on one computer at a time.

9. If you have a floating license, you can set up your license on up to three redundant license servers. Type the NIC ID or Host ID for redundant servers in the **Redundant Server ID 2** and **Redundant Server ID 3** boxes.
10. Click **Submit**.
11. To edit an existing computer profile, follow these steps:
    a. Click the **Update Computer** icon next to the computer that you want to edit in the **My Computers** table.
    b. Make changes in the **Update Computers** dialog box.
    c. Click **Submit** when you are finished making changes.

Related Information

- **Hardware Information Required when You Request a License** on page 5-4
- **Self-Service Licensing Demonstrations**

Rehosting a License

You can rehost or transfer a license from one computer to another. You can rehost each license up to three times within your maintenance period.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. To rehost a license, follow these steps:
    a. In the **Computers and License Files** tab, locate the product you want to rehost.
    b. In the **Update Computer** column, click the **pencil** icon.
    c. In the **Update Computer** diaog box, change the host ID in the **Primary Computer ID** box, and click the **Submit** button.
4. Click **Get License**.

Your license file is sent to the email address specified for your myAltera account profile. Your software license type must match the license type of any license you want to assign your computer.

Related Information

- **Creating a Computer Profile** on page 5-8
- **Self-Service Licensing Demonstrations**

Adding Floating Seats

You can add floating seats to an existing floating license to increase the number of users available. Adding additional seats to an existing floating license may affect its maintenance expiration date.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. In the **Add Seat License** tab, click **Add Seats** to access the My Add Seat License page.
4. On the Add Seats page, select a product to which you want to add additional seats, and click **Next**.
5. Select the product with the seats you want to apply and click **Next**.
6. Type the number of additional seats you want to add to your floating license in the **Number of Seats to Add** box.

When you add additional seats to an existing floating license, the new maintenance subscription term of the floating license is calculated by adding the total number of maintenance months for the existing and

new seats, and then dividing by the total number of seats. Any partial number is rounded up to the nearest whole number.

Example 5-1: Floating License Example

If you have an existing floating license with ten seats that expires in five months and you purchase two additional seats, your updated floating license maintenance subscription would expire in seven months for all twelve seats.

Related Information

Self-Service Licensing Demonstrations

Renewing a License

You can renew an existing license with the Self-Service Licensing Center. You must first purchase your license renewal, for example, from the Buy Design Software page of the Altera website, before applying a renewal.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. In the **Renewal License** tab, click **Apply Renewals** to access the Apply Renewals page.
4. Select the product you want to renew, and click **Next**.
5. Select the renewal product you want to apply, and click **Next**.

Related Information

- **Self-Service Licensing Demonstrations**
- **Buy Design Software**

Activating a License

After you purchase new software, you must activate it before you can request a license to enable it. You activate new licenses with the Self-Service Licensing Center.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. If the product you want to license is not listed, click **Find it with Your License Activation Code**.
4. Type your license activation code or Quartus Prime software serial number in the Find/Activate Products page, and click **Search**.
5. Select the products that you want to activate in the **Activate Products** table.
6. Click **Activate Selected Products**.

Related Information

- **Self-Service Licensing Demonstrations**
- **Buy Design Software**

Managing Licensed Users

You can assign or change users for your existing licenses. Licensed users are granted access to their assigned licenses.

1. Log on to your myAltera account from the Altera website.
2. Access the Self-Service Licensing Center.
3. In the **Products and Users** tab, click the **License User** icon for the license you want to update in the **Licensed User** column of the **My Altera Software and IP Products** table.
4. In the **User Information** box, type the name and email address of the licensed user, and then click **Save**.

   The licensed user receives an email notifying them that they have been added as a licensed user and now have access to the specific license that they have been assigned.

Related Information

Self-Service Licensing Demonstrations

Setting Up Your License File

You can use fixed, single-user licenses as is without modification. However, you must modify floating, multi-user licenses before using them.

Setting Up a Fixed License

To set up a fixed license file (single user, single computer), follow these steps:

1. Make a backup copy of any existing **license.dat** file for reference.
2. Save the **license.dat** file (that was attached to the licensing email you received from Altera) on your local hard drive.

   Altera recommends that you store the **license.dat** file in a directory named **C:\licenses\flexlm** (Windows) or **/usr/local/flexlm/licenses** (Linux).

   When you specify the license file location, use only alphanumeric characters and do not type any special characters or symbols, such as !$%^&*<>, empty spaces, or non-English characters in the license file directory name. Special characters may invalidate the license file location.
3. Use one of the following methods to specify your license:

   - Specify the license within the Quartus Prime software.
   - Specify the license file using an environment variable.

   If you are using the legacy Quartus II software version 7.2 or earlier, you must also use a software guard. Attach the software guard to a parallel or USB port on your computer.

Related Information

- **Specifying the License File within the Quartus Prime Software** on page 3-6
- **Specifying the License File with the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE Environment Variable** on page 3-6

Specifying the License File within the Quartus Prime Software

You can specify a fixed or floating license file within the Quartus Prime software.

To specify the license file within the Quartus Prime software, follow these steps:

1. Start the Quartus Prime software. If the Quartus Prime software cannot detect a valid license file, you are prompted to license, evaluate, or buy the software.
2. Select **Specify valid licence file**. The **License Setup** page on the **Options** dialog box appears.
3. In the **License file** box, specify the full path name of the **license.dat** file.
4. Click **OK**.

After you specify the location of the license file, you can begin using the software.

Related Information

Quartus Prime Help: Specifying the License File within the Quartus Prime Software

Specifying the License File with the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE Environment Variable

You can specify the Quartus Prime software license location with the `LM_LICENSE_FILE` or `ALTERAD_LICENSE_FILE` environment variable.

To specify the license file:

1. Close the software if it is open.
2. Set the `LM_LICENSE_FILE` or `ALTERAD_LICENSE_FILE` environment variable using the Control Panel (Windows) or by editing your **.cshrc** or **.bashrc** file (Linux).

   Note: Linux: You must source your **.cshrc** or **.bashrc** file before restarting the Quartus Prime software. See the topic on setting up the Linux environment for more details.
3. Start the Quartus Prime software.

Note: The license file setting in the **License Setup** dialog box supersedes the `LM_LICENSE_FILE` or `ALTERAD_LICENSE_FILE` environment variable setting.

Setting Windows Environment Variables

To set environment variables in Windows, follow these steps:

1. Click **Windows Start menu** > **Control Panel** (or open the Control Panel app in Windows 8).
2. Click **System and Security**.
3. Click System.
4. Click **Advanced system settings**.
5. Click the **Advanced** tab in the **System Properties** dialog box.
6. Click **Environment Variables**.
7. Select a variable in the **Environment Variables** dialog box.
8. Click **Edit**.
9. Type a value in the **Variable value** box in the **Edit Variable** dialog box.

Setting Up Floating Licenses

Floating multi-user licenses require you to set up the license on the computer running the Quartus Prime software and on the license manager server. In both cases, you must modify the license file (**license.dat**) to include your license server host name, port, and paths.

Editing the license.dat License File

When you modify the **license.dat** file, ensure that the following conditions are met so that your license is not corrupted:

- The text editor does not append **.txt** or any other file extension to the file name, for example, **license.dat.txt**, otherwise the software cannot find the license.
- A carriage return (new line) must be present at the end of the last `FEATURE` line.
- Any `FEATURE` line that wraps to a second or third line must have a backslash (\) at the end of each line to indicate that it continues. However; there is no backslash (\) at the end of the lines if the `VENDOR_STRING` line wraps to multiple lines. The backslash should only be added outside the line with double quotation marks (").
- If you are using a 64-bit version of the Quartus Prime software, ensure a space exists between the closing double quotation mark(") and backslash (\) at the end of the `VENDOR_STRING` line.
- No hidden control characters exist in the license file.
  - If you open the license file with any software other than a plain text editor, the software may add hidden characters. For example, WYSIWYG editors such as Microsoft Excel, Word, or WordPad, may insert special control characters such as a tab or carriage return. If special control characters are pasted into another plain text document, the license file can be corrupted by characters that may not be visible in a plain text editor.
  - If you edit the license file in one operating system, copy the license file in another operating system, and then copy the license file to the Windows operating system, the second operating system may insert unwanted control characters into the license file if you do not correctly convert the file.

Refer to About Altera License Files for information about the contents of a license file and example licenses.

Related Information

About Altera License Files on page 6-1

Setting Up a Floating Network License on Your Local Computer

To set up a floating license on your local computer, follow these steps:

1. Obtain the port number and host name from the network or system administrator. This information can also be found in the license file line beginning with `SERVER`.

   `SERVER`<*hostname*> <*8 or 12 character host or NIC ID*> <*port*>

   The license location for the user is <*port*>@<*hostname*>. If a port is not listed in the **license.dat** file, specify @<*hostname*>.
2. After you obtain the port number and host name, use one of the following methods to set up your license:
   - Specify the license file within the Quartus Prime software.
   - Specify the license file using an environment variable.

Related Information

- **Specifying the License File with the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE Environment Variable** on page 3-6
- **Specifying the License File within the Quartus Prime Software** on page 3-6
- **Setting Up Floating Network Licenses on the License Server** on page 5-14

Setting Up Floating Network Licenses on the License Server

Setting up a floating network license server is typically performed by a system administrator. Altera software uses the FLEXlm software to administer licensing for single or multiple users in a network installation.

You can set up a floating network license on a Windows, Solaris, or Linux license server using the FLEXlm license manager software provided by Altera.

1. Modify your license file to include information about your license server (e.g., host name).
2. Set up the FLEXlm license manager on your license server.
3. Start the license server.

To set up a new or updated license on an existing license server, follow the instructions for rereading the license file.

Related Information

- **Modifying the Network License File** on page 5-14
- **Quartus Prime Help: Setting Up Floating Network Licenses on the License Server**

Modifying the Network License File

The **license.dat** file must be modified before it can be used by the license server.

To modify and save the license file, in the **license.dat** file, type the variables that are described in the following table. The host or NIC ID is already included in the license file. The host and daemon lines are of the format:

`SERVER` *<host name>* *<host/NIC ID>* *<host port number>*

`VENDOR altera`d *<path to daemon executable>* `port=`*<user-defined port number>*

`VENDOR mgcld` *<path to daemon executable>* `port=`*<user-defined port number>*

Table 5-2: Variables to Modify in the License File (license.dat)

Variable Name	Description
<host name>	The host name of the server; for example, `my_server`.
<host port number> **(1)**	The port number for the license manager service on the server; for example, `1800`. The port number is required for Windows systems and should be outside of the `27000-28000` range and be unique on the machine.
`alterad` "*<path to daemon executable>*" **(2) (3)**	Path to the Altera vendor daemon executable **alterad**. • \<*Quartus Prime system directory*>`\bin64\alterad.exe` (Windows) • /<*Quartus Prime system directory*>`/linux64/alterad` (Linux) • /<*Quartus Prime system directory*>`/solaris/alterad` (Solaris) **(5)**

Variable Name	Description
`mgcld "<path to daemon executable>"` **(2) (3) (4)**	Path to the Mentor Graphics vendor daemon executable **mgcld**. • `\<ModelSim-Altera system directory>\win32aolem\mgcld.exe` (Windows) • `/<ModelSim-Altera system directory>/linuxaloem/mgcld` (Linux) • `/<ModelSim-Altera system directory>/sunos5aloem/mgcld` (Solaris) **(5)**

`port=<user-defined port number>`	Optional, user-defined port numbers for the **mgcld** and **alterad** daemons. The FLEXlm software works with Internet firewalls that require you to specify port numbers. You must specify a port number on the SERVER line in the license file. You must also specify different port numbers on each VENDOR or DAEMON line with the PORT=<*number*> syntax. Finally, you must allow firewall access to those port numbers. The following example shows how to specify port numbers in a floating license file. To provide access through a firewall for the following example, specify ports 1800, 1801, and 1802.
	`SERVER myServer 0123456789ab 1800`
	`VENDOR alterad ./alterad port=1801`
	`VENDOR mgcld ./mgcld port=1802`

Notes:

1. If you do not specify a port number, the FLEXlm license manager automatically chooses a free port between 27000 and 27009. However, in Windows systems you must specify an explicit port number.
2. If the license server does not provide the necessary vendor daemon, copy the required daemon from another machine, save the file in a location on the license server, and specify the daemon location on the license server in the license file.
3. If the server path has spaces in it, enclose the full path in quotation marks.
4. If you are not using a license file for the ModelSim-Altera software, you may delete this line.
5. Legacy Quartus II software versions 8.0 and later do not support the Sun Solaris operating system. However, Altera software does support Sun Solaris license servers.

When you complete all modifications, ensure the license file conditions are met.

Related Information

Editing the license.dat License File on page 5-13

Specifying the License for the ModelSim-Altera Edition Software

The ModelSim-Altera Edition software supports licenses using the Mentor Graphics license daemon **mgcld**. You can find the **mgcld** daemon in the following directories:

- Windows: <*ModelSim-Altera system directory*>**\win32aloem**
- Linux: <*ModelSim-Altera installation directory*>**/linuxaloem**

Note: The ModelSim-Altera Starter Edition software versions 6.4g and later do not require a license.

Before starting the ModelSim-Altera software, set the `MGLS_LICENSE_FILE` environment variable to the location and file name of the ModelSim-Altera license file. For example, `MGLS_LICENSE_FILE` (<*ModelSim*

Altera installation directory> **/licenses/eda/license.dat**) or with the <*port*>@<*hostname*> `notation` **(1900@set)**, where <*port*> is the license port number and <*hostname*> is the server's host name.

The ModelSim-Altera Edition software license expires 15 months after the date of purchase, at which point you can no longer use the software. You must obtain an updated Quartus Prime software subscription license file from the Self-Service Licensing Center every 15 months to renew your license for the specific ModelSim-Altera Edition software version that you purchase. You can use only the version of ModelSim-Altera Edition software that you purchase with the updated license.

Related Information

- **Modifying the Network License File** on page 5-14
- **Specifying the License File with the LM_LICENSE_FILE or ALTERAD_LICENSE_FILE Environment Variable** on page 3-6
- **Self-Service Licensing Center**

Transferring a License File to Another Computer

If you want to transfer your license file to another computer, you can rehost your license.

You rehost licenses on the Self-Service Licensing Center on the Altera website.

Related Information

Rehosting a License on page 5-9

Setting Up or Upgrading a License Manager Server

The Quartus Prime software uses the FLEXlm license manager software to administer licensing for single or multiple users in a network installation. This section provides instructions for upgrading and setting up the FLEXlm server software for Windows and instructions for configuring network licensing for Linux.

Note: The Quartus II and Quartus Prime software versions 8.0 and later do not support the Solaris operating system. However, Altera software does support Solaris license servers.

To run the FLEXlm **lmgrd** license server manager on a Linux workstation, make sure that the **/usr/tmp** directory exists.

A system administrator should perform these steps to configure license servers after the Quartus Prime software is installed.

Configuring a New License Server

The Quartus Prime software uses the FLEXlm license manager server software to administer licensing for single or multiple users in a network installation. If you do not have an existing FLEXlm license server, you must configure a new license server before starting the Quartus Prime software for the first time.

Note: You should be aware of the following information before you configure a new license server:

- You must have system administration (Administrator) privileges on Windows.
- You must have a valid license file.
- These instructions assume that you saved the **license.dat** file in the <*drive*>**:\flexlm** directory (Windows) or the **/usr/local/flexlm/licenses** directory (Linux). If you installed the license file in a different directory, substitute the directory path.

To launch a new license server, type the following command at a command prompt:

Windows:

<*Quartus Prime system directory*>`\bin64\lmgrd -c` <*drive*>`:\flexlm\license.dat`

Linux or Solaris:

<*Quartus Prime system directory*>/<*operating system*>`/lmgrd -c /usr/local/flexlm/licenses/license.dat`

Where <*operating system*> is `linux` or `solaris`.

Related Information

Quartus Prime Help: Upgrading or Setting Up a License Manager Server

Upgrading the FLEXlm License Manager Server Software

To support network licensing, the Quartus Prime software requires the FLEXlm license manager server software version 11.11.1 or later.
The installation process for Windows installs the FLEXlm software version 11.11.1 for all Windows and Linux platforms). However, you should also verify that the FLEXlm software version of the license server is 11.11.1.

Note: FLEXlm version 9.5 is the newest software version available for Solaris license servers.

To upgrade an older version of the FLEXlm software, follow these steps:

1. Make a backup copy your current **lmgrd** and **alterad** daemons.
2. Copy the new versions of the files to the computer running the license server over your current daemons. You may have to shut down the license server software to complete this step. If you installed the FLEXlm software using the Quartus Prime installer, the current versions of the **lmgrd** and **alterad** daemons are located in the following directories:

   Windows:

   <*drive*>:\<*Quartus Prime system directory*>**\bin64\alterad**

   <*drive*>:\<*Quartus Prime system directory*>**\bin64\lmgrd**

   Linux or Solaris:

   /<*Quartus Prime system directory*>/<*operating system*>**/alterad**

   /<*Quartus Prime system directory*>/<*operating system*>**/lmgrd**

   Where <*operating system*> is **linux64** or **solaris**.
3. Copy the FLEXlm software utility **lmutil** from the Quartus Prime system directory to the license server computer.
4. Restart the FLEXlm license server by typing the following commands at a command prompt:

   Windows:

   <*FLEXlm system directory*>`\lmutil -c lmdown` <*license file path*>

   <*FLEXlm system directory*>`\lmgrd -c` <*license file path*>[`-l`<*optional log path*>]

Linux or Solaris:

/<*FLEXlm system directory*>/`lmutil -c lmdown` <*license file path*>

/<*FLEXlm system directory*>/`lmgrd -c` <*license file path*> [`-l`<*optional log path*>]

Related Information

- **About Downloading and Installing Altera Software**
- **Rereading an Existing License File** on page 5-18

Determining the FLEXlm Software Version

On the computer running the FLEXlm software, type the following commands at a command prompt:

- Windows:

  `<FLEXlm system directory>\lmgrd -v`

  `<FLEXlm system directory>\alterad -v`
- Linux or Solaris:

  `/<FLEXlm system directory>/lmgrd -v`

  `/<FLEXlm system directory>/alterad -v`

  If the **lmgrd** or **alterad** daemons are not from the FLEXlm software version 10.8, you must upgrade both daemons with the versions provided with the Quartus Prime software.

Related Information

Upgrading or Setting Up a License Manager Server

Rereading an Existing License File

If you change the license file, you must reread the license file or restart the license server before you can run the Quartus Prime software again. If you have an existing FLEXlm license server with an existing license file for the MAX+PLUS II software, or software from another vendor, and the FLEXlm license manager server software is version 11.11.1, you can copy and paste the Altera `FEATURE` lines from your Quartus Prime **license.dat** file into your existing license file. Make sure you modify the FEATURE lines for your server.

Note: You can see a list and description of the available FLEXlm options by typing `lmgrd -help` at a command prompt.

Related Information

- **Modifying the Network License File** on page 5-14
- **Setting Up Your License File** on page 5-11
- **Setting Up or Upgrading a License Manager Server** on page 5-16
- **Configuring a New License Server** on page 5-16

Rereading the License File on a License Server for Windows

1. Type the following command at a command prompt:

   `<Quartus Prime system directory>\bin64\lmutil lmreread`
2. (Or) Follow these steps:

a. In the **LMTOOLS** dialog box, click **Configuration using Services**.
b. Select the name of the license server, usually **Flexlm License Server**.
c. Click the **Start/Stop/Reread** tab.
d. Click **ReRead License File**.

Rereading the License File on a License Server for Linux or Solaris

1. Type the following command at a command prompt:

   `<Quartus Prime system directory>/<operating system>/lmutil lmreread`

   Where `<operating system>` is `linux64` or `solaris`.
2. (Or) Restart the license server.

Starting and Stopping the License Server

When configuring the license server, you can start and stop the license server with the **LMTOOLS** dialog box. Before you start or stop the license server, you must configure a new license server as a Windows service.

To start or stop the license server with the **LMTOOLS** dialog box, follow these steps:

1. Type the following command at a command prompt:

   `<Quartus Prime system directory>\bin64\lmtools`
2. In the **LMTOOLS** dialog box, click **Configuration using Services**.
3. Select the name of the license server, usually **Flexlm License Server**.
4. Click the **Start/Stop/Reread** tab.
5. Click **Start Server** or **Stop Server**.

Related Information

Configuring a New License Server on page 5-16

Starting the License Server Automatically

When configuring the license server, you can set up the license server to start automatically at startup with the **LMTOOLS** dialog box. You must configure a new license server as a Windows service before you set up the license server to start automatically at startup.

To start the license server automatically at startup with the **LMTOOLS** dialog box, follow these steps:

1. Type the following command at a command prompt:

   `<Quartus Prime system directory>\bin64\lmtools`
2. In the **LMTOOLS** dialog box, click **Configuration using Services**.
3. Select the name of the license server, usually **Flexlm License Server**.
4. Click the **Config Services** tab.
5. Turn on **Use Services**.
6. Turn on **Start Server at Power Up**.

Related Information

Configuring a New License Server on page 5-16

Installing the FLEXlm License Manager Server Software on Another License Server

To install the FLEXlm license manager server software on an additional license server, follow these steps:

1. Create one of the following directories on the additional license server.
   - Windows—<*Quartus Prime system directory*>\
   - Linux or Solaris—<*Quartus Prime system directory*>/<*operating system*>

   Where <*operating system*> is **linux64** or **solaris**.
2. Copy the following files from the <*Quartus Prime system directory*>\, <*Quartus Prime system directory*>/**linux64**, or <*Quartus Prime system directory*>/**solaris** directory of your original Quartus Prime software into the new directory:
   - **lmgrd**
   - **lmutil**
   - **alterad**
   - **lmtools** (Windows)

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License File Troubleshooting

If you have trouble modifying your license file, you can use the topics about license file formats to troubleshoot.

Related Information

- **Quartus Prime Help: License File Troubleshooting**
- **Software Licensing Troubleshooter**
- **Support Center**
- **Altera Licensing**

License File Components

This topic describes the different parts of the Altera license file (**license.dat**).

License File Header

Altera license files have headers that contain identifying information specific to the license, such as the type of license, the primary computer and companion IDs, issue and expiration dates, and a product license summary.

The example below shows the header of a fixed license file that contains a license for the Quartus Prime software and the ModelSim-Altera Edition software. This license file works on a PC that has software guard number T000012345 attached to its parallel port. The license was issued on May 13, 2010, is a perpetual license with no defined companion IDs, and has a maintenance expiration date of April 2011.

```
# Altera Corporation Software and/or Intellectual Property License File
# Issued 13 May 2010
# Perpetual-No License Expiration
# Upgrade to these products will no longer be available after the
# Maintenance Expiration date unless licenses are renewed.
# Fixed Node License
# Primary Machine Name-scenario 1
# Primary Machine ID-Guard ID T000012345
# Companion ID-N/A
```

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ISO 9001:2008 Registered

```
# Companion ID 2-N/A
# Product License Summary:
# - ModelSim-Altera Edition Software, 1 Seat(s)
# Maintenance Expiration of 2011.04
```

SERVER, VENDOR, and USE_SERVER Lines

A floating license file starts with SERVER, VENDOR, and USE_SERVER lines to describe the license server. Fixed license files do not contain these entries. These license lines are structured as shown in the following example:

SERVER <*hostname*> <*8 or 12 character host or NIC ID*> <*port*>

VENDOR <*daemon*> <*path*>

USE_SERVER

The USE_SERVER line designates the license file as a floating license.

You can configure up to three redundant network license servers with the FLEXlm licensing scheme. In this case, there are three SERVER lines, one for each license server machine. The first server specified is the master.

Typically, a license file contains multiple VENDOR lines; one for each required license vendor daemon. Some license files might use the DAEMON keyword instead of VENDOR.

Table 6-1: Elements of the SERVER and VENDOR Lines for Floating Licenses

Element Name	Editable	Description
hostname	yes	The host name of the server in the **license.dat** file.
8- or 12-character host or NIC ID	no	The PC NIC or UNIX Host ID of the server. You must supply this ID to Altera when purchasing the license.
port	n/a	The port number.
daemon	no	The vendor daemon name: • **alterad** daemon: Quartus Prime software • **mgcld** daemon: ModelSim-Altera software • **armlmd** daemon: ARM features of the ARM Development Suite (ADS)
path	yes	The path to the vendor daemon on the server. You must edit this entry.

FEATURE and INCREMENT Lines

All Altera license files contain FEATURE, and possibly INCREMENT lines, to describe the software features that are licensed by the **license.dat** file. Certain features use INCREMENT lines, which are structured similarly as FEATURE lines. The FEATURE line is structured as shown in the following example:

FEATURE <*name*> <*daemon*> <*version*> <*expiration*> <*# of licenses*> <*authcode*> [<*vendor_string*>] [<*hostid_lock*>][*SIGN*][*SUPERCEDE*] [<*issuer*>]

A backslash (\) character indicates that the FEATURE or INCREMENT line continues on the next line in the text file. The last line of each FEATURE line does not require the backslash. Elements in brackets [ ] are present only in some license FEATURE or INCREMENT lines. The example below shows a FEATURE line, followed by an INCREMENT line.

```
FEATURE START
# The following is a feature line for Quartus Prime Standard Edition Fixed
# Number of seat licenses is 1
# No license expiration date
FEATURE maxplus2 altera 2015.04 permanent uncounted 6D103456930D \
HOSTID=GUARD_ID=T000012345 SIGN="0116 7EF5 F487 4771 3456 9278 \
4DA6 80CF 4131 95C6 1F1E D54F 8429 C807 6A8B 0A13 BC80 A11D 0F6E \
AC08 4FA8 0B6E C267 9BBB 5791 C037 0FAD FB9E FFD8 5CF4"
FEATURE quartus altera 2015.04 permanent uncounted 08E2123438D3 \
HOSTID=GUARD_ID=T000012345 TS_OK SIGN="0403 403E CF63 6460 \
3C3D 2AA7 60B3 A074 77A7 670A 3C5D BF03 9391 3476 D1DA 14E7 56FA \
0F63 1EE2 77C8 41C9 3495 A238 FF7C F507 6573 54FA F46C D42B C0B3"
# FEATURE END
############################################################################
INCREMENT alteramtivsim mgcld 2015.04 13-aug-2015 uncounted \
6D7CE8FDD113FDB05C51 \
VENDOR_STRING=2A865E73 HOSTID=GUARD_ID=T000012345 ISSUER="Altera" \
SN=23912821 SIGN2="03BB 4774 F8FA 6E7A 4B71 5E3B FB9C 92B5 7B2F \
3581 49EF 4558 0945 260B 23C6 1DE0 2BD4 3709 6945 5A70 CAD6 C22B \
7A4E 67B7 C8FF 90BB B360 022C E3DC 32F8"
# FEATURE END
```

Table 6-2: Elements of the FEATURE and INCREMENT Code Lines

Element Name	Description
name	The feature name.
daemon	The name of the vendor daemon that manages the feature. This name corresponds to a VENDOR line in network/server licenses.
version	Any version of software released up to and including this date is licensed. Software with a later version date does not function using this license file.
expiration	The date after which the software or service pack cannot be used. The expiration date applies to trial licenses. For Altera license subscriptions, the expiration is permanent.
# of licenses	The number of concurrent users that can run each feature. For some license types, the entry is uncounted.
authcode	An authorization code generated by Altera.
vendor_strings	Specified for certain third-party license features.

Element Name	Description
hostid_lock	Specified if a feature is node-locked to a software guard, NIC ID, or hard-disk serial number. Intellectual property (IP) MegaCore functions often contain node-locked feature lines in floating licenses. • Software guard: `HOSTID=GUARD_ID=` <*Software guard number*> • Network interface card (NIC): `HOSTID=`<*NIC ID*> • Hard-disk serial number: `HOSTID=DISK_SERIAL_NUM=`<*Hard-disk ID*>
issuer	The name of the ModelSim license issuer.
sign	An authorization code generated by Altera.
`TS_OK`	Enables remote login for fixed license Quartus Prime software (includes Altera IP, Nios II Software Build Tools for Eclipse, and DSP Builder).

The following table describes the available Altera license features. This table does not include license features for any intellectual property (IP), development kits, or special license codes used for the Quartus Prime Lite Edition software.

Table 6-3: Available Altera License Features

Feature Name	Description
`quartus`	Quartus Prime Standard Edition software
`quartus_pro`	Quartus Prime Pro Edition software
`alteramtivsim`	ModelSim-Altera VHDL and Verilog HDL Simulator **(1)**
`alteramtivlog`	ModelSim-Altera Verilog HDL Simulator **(2)**

Notes:

1. The `alteramtivsim` license subscription supports both VHDL and Verilog HDL, but the software does not support mixed language simulation for ModelSim-Altera version 6.4a and later. For ModelSim-Altera version 6.3g_p1and earlier, the `alteramtivsim` license subscription supports VHDL only.
2. The ModelSim-Altera `alteramtivlog` license subscription supports Verilog HDL only and is available for ModelSim-Altera Edition version 6.3g_p1 and earlier.

Using a FLEXlm Options File

If your license file contains `FEATURE` and `INCREMENT` lines for the same software but different maintenance dates, the license server may grant newer licenses from the `FEATURE` line to users running older versions of software, which leaves fewer licenses for users running newer versions of software.

By default, the license server uses licenses from the first matching FEATURE or INCREMENT line in the license file. If all the licenses in the first FEATURE or INCREMENT line are in use, the license server attempts to use the next FEATURE or INCREMENT if one is available, until it reaches the end of the license file. You can use a FLEXlm options file to control which users can access which licenses by creating pools of licenses for each FEATURE and INCREMENT line.

To create a FLEXlm options file to use with a floating license server, follow these steps:

1. In a new text file, add a GROUP line for each user group you want to create, with a list of user names, separated by spaces for each group, as follows:

   ```
   GROUP <group name> <username 1> <username 2>
   ```

   Users can be members of more than one group as shown in the following example:

   ```
   GROUP quartus2010 kjones bknight root administrator

   GROUP quartus2009 bknight cface root administrator
   ```

2. Add an INCLUDE line for each INCREMENT and FEATURE line in your license file for the product you wish to control. The VERSION keyword must be set to the maintenance date or version date on the INCREMENT or FEATURE line from the license file. The GROUP field controls which group or groups can use the license line as follows:

   ```
   INCLUDE <product name>:VERSION=<maintenance date> GROUP <group name>
   ```

   For example:

   ```
   INCLUDE quartus:VERSION=2010.12 GROUP quartus2010
   INCLUDE quartus:VERSION=2009.06 GROUP quartus2009
   INCLUDE ip_base:VERSION=2010.12 GROUP quartus2010
   INCLUDE ip_base:VERSION=2009.06 GROUP quartus2009
   ```

3. Save the options file <*filename*>**.dat**.
4. Add the options file as the last option on the VENDOR line in your license file, as shown in the following example:

   ```
   VENDOR alterad "C:\lic\alterad.exe" "C:\lic\alteraOptions.dat"
   ```

5. Restart your FLEXlm license server or reread your license file.

Related Information

Rereading an Existing License File on page 5-18

License.dat Example Files

This topic includes several example **license.dat** files. License files vary, depending on the type of licenses and the software that is enabled. License examples in this section should be used only for reference; they are not valid for actual licensing.

Fixed PC Software Guard License Example

The example below shows a **license.dat** file that contains a license for the Quartus Prime Standard Edition software and the ModelSim-Altera Edition software. This license file works on a PC that has software guard number T000012345 attached to its parallel port.

```
##############################################################################
FEATURE START
```

```
# The following is a feature line for ModelSim Altera Edition
# Number of seat licenses is 1
# No license expiration date
INCREMENT alteramtivsim mgcld 2015.04 13-aug-2015 uncounted \
     6D7CE8FDD113FDB05C51 \
     VENDOR_STRING=2A865E73 HOSTID=GUARD_ID=T000012345 \
     ISSUER="Altera" \
     SN=23912821 SIGN2="03BB 4774 F8FA 6E7A 4B71 5E3B FB9C 92B5 \
     7B2F 3581 49EF 4558 0945 260B 23C6 1DE0 2BD4 3709 6945 5A70 \
     CAD6 C22B 7A4E 67B7 C8FF 90BB B360 022C
# FEATURE END
############################################################################
FEATURE START
# The following is a feature line for Quartus Prime Standard Edition Fixed
# Number of seat licenses is 1
# No license expiration date
FEATURE maxplus2 alterad 2015.04 permanent uncounted 6D103456930D \
     HOSTID=GUARD_ID=T000012345 SIGN="0116 7EF5 F487 4771 3456 9278 \
     4DA6 80CF 4131 95C6 1F1E D54F 8429 C807 6A8B 0A13 BC80 A11D \
     0F6E AC08 4FA8 0B6E c267 9BBB C037 0FAD FB9E FFD8 5CF4"
FEATURE quartus alterad 2015.04 permanent uncounted 08E2123438D3 \
     HOSTID=GUARD_ID=T000012345 TS_OK SIGN="0403 403E CF63 6460 \
     3C3D 2AA7 60B3 A074 77A7 670A 3C5D BF03 9391 3476 D1DA 14E7 \
     56FA 0F63 1EE2 77C8 41C9 3495 A238 F507 6573 54FA F46C FF7C \
     D42B C0B3"
############################################################################
End of Altera Corporation Software and/or Intellectual Property
License File.
Issued 5/13/2015
```

Floating Network License Example

The example below shows a **license.dat** file that contains a license for the Quartus Prime Pro Edition software, the ModelSim-Altera Edition software, and the IP Base Suite. This license specifies that two users can run the software simultaneously and works when the PC with NIC ID `00B0D0ABCCBA` is set up as a license server and the users point to the license location.

```
############################################################################
SERVER <hostname> 00B0D0ABCCBA <port number>
VENDOR alterad <path to daemon executable>
USE_SERVER
############################################################################
FEATURE START
# IP Base Suite (FIR Compiler II, FFT, NCO, DDR2 (UniPHY), DDR2 (ALTMEMPHY), DDR3,
# LPDDR2, QDR II, RLDRAM II)
# Number of seat licenses is 2
# No license expiration date
PACKAGE ip_base alterad COMPONENTS="6AF7_0034 6AF7_0012 6AF7_0055 \
     6AF7_00A8 6AF7 00A7 6AF7_00A8 6AF7_00C2 6AF7_00BE 6AF7_00BF \
     6AF7_00A4 6AF7_00AC 6AF7 00AD 6AF7_0014" OPTIONS=SUITE \
     IGN="1A76 FAF3 0CFA 9A0B D5A9 C867 4923 F223 AA3B C17B 6F11 \
     98E6 8056 178E A795 1F63 7695 1260 3D0C F662 2657 4AFF 25BD \
     3029 0C7C 1B3A 542A 3948 9F90 03CE" \
FEATURE ip_base alterad 2015.05 permanent 2 D7564046983D \
VENDOR_STRING="iiiiiiiihdLkhIIIIIIIIUPDuiaaaaaaaa11X38DDDDDDDDpjz5
cddddddddJJJJJbqIhouuuuuuuuYYWiVVVVVVVVbp0FVHHHHHHHHHBUEakffffffffD
2FFRkkkkkkkkWL$84" \
     DUP_GROUP=UHD SIGN="0A9A EB33 1A75 A16D 5949 B37B 015F 1A69 \
     9FD4 CED3 ABCE A628 9FDE 4846 455C 01E1 064B D881 C079 215C \
     FBAE 86B2 AC3F 4210 F471 6298 A340 CFC8 BCDA C218"
# FEATURE END
############################################################################
FEATURE START
# The following is a feature line for Quartus Prime Pro Edition Floating
# Number of seat licenses is 2
```

```
# No license expiration date
FEATURE maxplus2 alterad 2015.05 permanent 2 71781799E9FF \
     SIGN="0D15 DBE8 1893 DA63 0658 4F28 D47C 64D8 A9AB 4E84 A3EE \
     4257 F592 753F E261 0FD9 C334 F2E9 C9A2 5316 CB42 EF0F 188D \
     7933 5134 6FDC 0BA8 6CCD FF8A 403D"
FEATURE quartus_pro alterad 2015.05 permanent 2 8D7C83160D8A SIGN="15F3 \
     2C48 65E9 1EAC 5E5F 19A0 1C53 7DF1 4BEA D4EA 422A 92C7 9CC0 \
     8B45 4A3D 0674 667C 1FB9 504E D960 8FC2 1B46 94C3 035B 3711 \
     651F D889 0B03 99F7 48EC"
# FEATURE END
##############################################################################
# End of Altera Corporation Software and/or Intellectural Property
License File.
Issued 05/13/2015
```

Additional Information 7

2015.11.02

MNL-1065 Subscribe Send Feedback

Document Revision History

The following table shows the revision history for this document.

Table 7-1: Document Revision History

Date	Version	Changes
2015.11.02	15.1	Updated to reflect the new Quartus Prime Lite, Standard, and Pro Edition sofware.
2015.05.04	15.0	• Reorganized the document. • Added a quick start for fixed, single user licenses.
2015.03.09	14.1	• Updated the supported Red Hat Linux version number (5 and 6 instead of 6 and 7) • Changed recommended screen resolution from 768 x 1024 to 1024 x 768

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Date	Version	Changes
2014.12.15	14.1	• Updated RPM package prerequisite information for Red Hat Linux Enterprise 7 and ModelSim-Altera Edition software and SoC EDS on systems running Red Hat Linux Enterprise 7 • Added Microsoft redistributable package requirements for ModelSim-Altera Edition • Updated FLEXlm license server version to 11.11.1 • Updated available software in the "Altera Software" topic • Removed references to Windows XP and Windows Server 2003 • Updated terminology in the "Adding Floating Seats" topic • Updated instructions for the "Setting Windows Environment Variables" topic • Added a firewall example to the "Modifying the Network License File" topic
2014.18.08	14.0a10.0	• Updated RPM package prerequisite information for Red Hat Linux Enterprise 6 and ModelSim-Altera Edition software and SoC EDS on systems running Red Hat Linux Enterprise 6
June 2014	14.0.0	• Updated "Cables and Ports" topic. • Updated "Upgrading or Setting Up a License Manager Server" topic. • Updated "Quartus II General Environment Variables" topic. • Updated "Download and Installation Prerequisites" topic. • Removed refences to 32-bit Quartus Prime software. • Added "Downloading and Installing Altera Software Updates" topic. • Updated "Rehosting a License" topic. • Updated 32-bit libraries in "Download and Installation Prerequisites" topic. • Updated "Modifying the Network License File" topic.

Date	Version	Changes
November 2013	13.1.0	• Added references to Altera SDK for OpenCL in "Altera Software" topic. • Updated information about downloading .tar files in "Installation Options" topic. • Removed note about installing software separately from "Installing Device Family Support" topic.
May 2013	13.0.0	• Removed references to the TCP/IP protocol in "More Download, Installation, and Setup Procedures" topic. • Removed references to SOPC Builder in "Supported Software Subscriptions" topic. • Removed the "Individual Software Files" topic, and "Using the 64-Bit Version of the Quartus II Software for Linux" topic. • Updated Altera Complete Design Suite DVD information in "Altera Software" topic. • Removed reference to Windows Vista in "Cables and Ports" topic. • Updated downloading, installing, and uninstalling Altera software information in "Altera Download Center" topic. • Updated information about installing the FLEXlm software in "Upgrading the FLEXlm License Manager Server Software" topic.
November 2012	12.1.0	• Updated Quartus Prime Web Edition information in “Altera Software” topic. • Added GIMP toolkit to the list of RPM packages in “Download and Installation Prerequisites” topic. • Updated the “Mentor Graphics Verification IP Altera Edition AMBA for AXI3 and AXI4” topic. • Updated the “Self-Service Licensing Center” topic. • Updated the environment variable in “Specify the License for the ModelSim-Altera Edition Software” topic. • Removed the "Quartus Prime NativeLink Environment Variables" topic.

Date	Version	Changes
June 2012	12.0.0	• Updated Internet browser information in the "System Requirements" topic. • Updated the RPM package information in the "Download and Installation Prerequisites" topic. • Added the "Mentor Graphics Verification IP Altera Edition AMBA for AXI3 and AXI4" topic. • Updated the "Obtaining a License File" topic. • Updated the Mentor Graphics vendor daemon executable paths in the "Modifying the Network License File" topic. • Updated the "Specify the License for the ModelSim-Altera Edition Software" topic. • Updated the "Quartus II NativeLink Environment Variables" topic.
November 2011	11.1.0	• Updated the "Altera Software" topic. • Updated the "Hardware" topic. • Updated the "Uninstalling Altera Software" topic. • Updated the "Modifying Altera Software" topic. • Updated the "Download and Installation Prerequisites" topic. • Updated the "Quartus II Software Evaluation Period" topic. • Updated the "UNIX Host ID" topic. • Updated the "Setting Up a Fixed License" topic. • Updated the "Setting Up a Floating Network License" topic. • Added the "Using a FLEXlm Options File" topic.

Date	Version	Changes
May 2011	11.0.0	• Updated "Installing Altera Software" topic to incorporate changes with the Nios II Embedded Design Suite (EDS) installation. • Updated the “Hardware” topic. • Updated the “Download and Installation Prerequisites” topic. • Added the “Intellectual Property (IP) Cores” topic. • Updated the “Development Kits Containing the Quartus II Software” topic. • Updated the “Quartus II Software Evaluation Period” topic. • Updated the “Licensing Requirements” topic. • Updated the “Requesting a License File” topic. • Removed the “Specifying the License for Intellectual Property (IP) Cores, DSP Builder, or Intellectual Property (IP) and Development Kits” topic. • Updated the “Upgrading the FLEXlm License Manager Server Software” topic. • Updated the “Rereading an Existing License File” topic. • Updated the “Quartus Prime Getting Started Tutorial” topic.
December 2010	10.1.0	• New document template. • Updated "Installing Altera Software" topic to incorporate changes with the Altera Complete Design Suite DVDs and device support installation. • Updated the default FLEXlm software version in “Upgrading or Setting Up a License Manager Server” topic. • Linked procedures to Help topics.
July 2010	10.0.0	Updated the manual to incorporate changes made to the Altera Installer and the Self-Service Licensing Center.
November 2009	9.1.0	The new manual merges content from the *Quartus Prime Software Installation & Licensing for Windows and Linux Workstations* manual and *AN 340: Altera Software Licensing*.

How to Contact Altera

To locate the most up-to-date information about Altera products, refer to the following table.

Table 7-2: Altera Contact Information

Contact *(1)*	Contact Method	Address
Technical support	Website	www.altera.com/support
Technical training	Website	www.altera.com/training
	Email	custrain@altera.com
Product literature	Website	www.altera.com/literature
Nontechnical support (general)	Email	nacomp@altera.com
Nontechnical support (software licensing)	Email	authorization@altera.com

Note to Table:

1. You can also contact your local Altera sales office or sales representative.

Related Information

- **www.altera.com/support**
- **www.altera.com/training**
- **custrain@altera.com**
- **www.altera.com/literature**
- **nacomp@altera.com**
- **authorization@altera.com**